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(54) **CELL RESELECTION METHOD, FREQUENCY CHANNEL NUMBER INFORMATION
MANAGEMENT METHOD, AND APPARATUS**

ZELLENNEUAUSWAHLVERFAHREN,
FREQUENZKANALNUMMERINFORMATIONSVORRICHTUNG
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PROCÉDÉ DE RESÉLECTION DE CELLULE, PROCÉDÉ DE GESTION D'INFORMATIONS DE
NUMÉRO DE CANAL DE FRÉQUENCE, ET APPAREIL

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(56) References cited:
WO-A1-2014/176978 CN-A- 102 045 686
CN-A- 103 152 799 CN-A- 103 686 880
CN-A- 105 282 797 US-A1- 2011 098 046
US-A1- 2015 271 718 US-A1- 2015 334 636

- **NSN ET AL: "Way Forward for Hetnet Re-establishment Enhancements", 3GPP DRAFT; R2-134097 WAY FORWARD FOR REESTABLISHMENT ENHANCEMENTS, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRA , vol. RAN WG2, no. San Francisco, USA; 20131111 - 20131115 13 November 2013 (2013-11-13), XP050736896, Retrieved from the Internet:
URL:http://www.3gpp.org/ftp/Meetings_3GPP_SYNC/RAN/RAN2/Docs/ [retrieved on 2013-11-13]**
- **ORANGE ET AL: "ANDSF policies conflict resolution in the UE", 3GPP DRAFT; S2-095169_CR0805_23.402_ANDSF POLICIES, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, no. Kyoto; 20090904, 4 September 2009 (2009-09-04), XP050396679, [retrieved on 2009-08-25]**

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Description

TECHNICAL FIELD

[0001] The present invention relates to the field of communications technologies, and in particular, to a cell reselection method and apparatus, and a frequency information management method and apparatus.

BACKGROUND

[0002] With rapid development of communications technologies, a plurality of types of terminals, such as a mobile phone, a tablet computer, and a netbook have emerged, and most of the terminals may support various types of networks, such as Global System for Mobile Communications (GSM), Code Division Multiple Access (Code Division Multiple Access, CDMA), Wideband Code Division Multiple Access (Wideband Code Division Multiple Access, WCDMA), and Long Term Evolution (Long Term Evolution, LTE). In addition, the terminals may further perform network reselection between different types of networks to ensure a high-quality network service.

[0003] Currently, when a terminal wakes up in a cell of a current network and from a discontinuous reception (Discontinuous Reception, DRX) period, the terminal may set a reselection condition by using a network parameter in a system message; for example, the terminal may set a threshold to -100 dB according to signal strength in the network parameter. If signal strength of the current network is lower than -100 dB, the terminal selects, according to delivered frequency information in the system message, a frequency that can meet the threshold, and switches to the frequency. If actual frequency information is not configured in the system message, the terminal cannot find the actual frequency information in the delivered frequency information, and cannot select a radio access technology (Radio access technology, RAT) cell with a relatively high service quality. Usually, to improve a camp-on priority capability, a terminal may perform optimization processing and start a network search. That is, the terminal starts an all radio frequency (Radio Frequency, RF) capability to perform an all bandwidth search on networks that are supported by the terminal. That is, the search is performed on all frequency bands supported by the terminal, and is not limited to the delivered frequency information in the system message, so as to find frequency information that meets the threshold, and reselect a cell that is corresponding to the frequency information in the network.

[0004] However, when the optimization is started, if the actual frequency information is not configured in the system message, when the terminal starts the all RF capability to search all bandwidths of the networks, a search time is relatively long. Consequently, the terminal cannot quickly perform cell reselection, and power consumption of the terminal is relatively high.

[0005] US 2015/271718 A1 discloses a method for managing a list of target frequencies for cell measurement. A set of available target frequencies for performing cell measurements from a serving cell can be received, and at least a subset of the set of available target frequencies can be prioritized based at least in part on a list of a plurality of target frequencies stored in a reselection database for the serving cell. Cell measurements can be performed based at least in part on at least the subset of the set of available target frequencies as prioritized.

[0006] US 2011/098046 A1 discloses a method for performing a cell selection by a multi-mode terminal from a legacy network (2G, 3G) to an advanced network (4G). The terminal performs the cell selection upon the existence of a LTE BS. The terminal does not attempt to perform the cell selection when the LTE BS does not exist.

[0007] NSN et al: "Way Forward for Hetnet Re-establishment Enhancements", 3GPP draft, R2-134097 discusses how to progress work in RAN2 and provides proposals for Re-establishment in RAN2#83bis.

[0008] ORANGE et al: "ANDSF policies conflict resolution in the UE", 3GPP draft, S2-095169 provides an access network discovery and selection function (ANDSF). The ANDSF contains data management and control functionality necessary to provide discover and selection assistance data as per operations' policy.

SUMMARY

[0009] The present invention provide a cell reselection method of claim 1, a cell reselection apparatus of claim 7, and a server of claim 12, so as to resolve a prior-art problem of a long network search time and large power consumption of a terminal in cell reselection. Possible implementation manners are disclosed in the dependent claims.

[0010] To achieve the foregoing objective, the following technical solutions are used in the embodiments of the present invention.

[0011] According to a first aspect, a cell reselection method performed by a terminal is provided, where the method includes: before performing cell reselection, receiving, by the terminal, configuration information from a base station; determining, by the terminal, whether frequency information that meets a reselection condition exists in the configuration information; when the terminal starts the cell reselection, if the terminal determines that no frequency information in the configuration information meets the reselection condition, querying, by the terminal, according to current frequency information of the terminal, first correspondence information corresponding to current location information of the terminal, where the first correspondence information is stored in the terminal, and/or in a server, the first correspondence information the first correspondence information includes a correspondence between search frequency information of the terminal and camp-on frequency information in a specified area, and the specified area is an area including a

current location of the terminal, wherein the current frequency information, the search frequency information, and the camp-on frequency information include at least attribute information: a frequency; and determining, by the terminal according to the first correspondence information, to reselect a second cell for the terminal; wherein the determining, according to the first correspondence information, to reselect a second cell for the terminal comprises: if first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, determining, by the terminal, whether the first camp-on frequency information meets the reselection condition, wherein the search frequency information comprises the current frequency information; and if the first camp-on frequency information meets the reselection condition, reselecting a second cell corresponding to the first camp-on frequency information for the terminal.

[0012] According to a second aspect, a cell reselection apparatus is provided, where the apparatus includes: a query unit, configured to: before performing cell reselection by the cell reselection apparatus, receive configuration information from a base station, determine whether frequency information that meets a reselection condition exists in the configuration information, and when the cell reselection apparatus starts the cell reselection, if it is determined that no frequency information in the configuration information meets the reselection condition, query first correspondence information according to current frequency information of the cell reselection apparatus, where the first correspondence information is stored in the cell reselection apparatus, and/or in a server, the first correspondence information includes a correspondence between search frequency information of the cell reselection apparatus and camp-on frequency information in a specified area, and the specified area is an area including a current location of the cell reselection apparatus, where the current frequency information, the search frequency information, and the camp-on frequency information include at least attribute information: a frequency; and a reselection unit, configured to determine, according to the first correspondence information, to reselect a second cell for the cell reselection apparatus; wherein the reselection unit is specifically configured to: if first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, determine whether the first camp-on frequency information meets a reselection condition, wherein the search frequency information comprises the current frequency information; and if the first camp-on frequency information meets the reselection condition, reselect a second cell corresponding to the first camp-on frequency information for the cell reselection apparatus.

[0013] In the foregoing technical solution, the terminal queries, according to the current frequency information, the first correspondence information corresponding to the current location information of the terminal, and quick-

ly reselects the second cell for the terminal according to the first correspondence information, so as to greatly improve a cell reselection success rate of the terminal, and reduce power consumption of the terminal.

[0014] Correspondingly and optionally, based on the first aspect, the determining, according to the first correspondence information, to reselect a second cell for the terminal includes: if no first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, performing, by the terminal, a network search to obtain second frequency information; and if the second frequency information meets a reselection condition, reselecting a second cell corresponding to the second frequency information for the terminal.

[0015] Correspondingly and optionally, based on the second aspect, the reselection unit is specifically configured to: if no first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, perform a network search to obtain second frequency information; and if the second frequency information meets a reselection condition, reselect a second cell corresponding to the second frequency information for the cell reselection apparatus.

[0016] In the foregoing optional technical solution, if the first camp-on frequency information exists in the first correspondence information, and the first camp-on frequency information meets the reselection condition, the terminal may directly reselect the second cell corresponding to the first camp-on frequency information. If no first camp-on frequency information exists in the first correspondence information, the network search is performed to obtain the second frequency information, and reselection is performed. This may reduce a time of the terminal in the network search, and improve a cell reselection success rate of the terminal.

[0017] Optionally, based on the first aspect, after the reselecting a second cell corresponding to the second frequency information for the terminal, the method further includes: sending a correspondence between the current frequency information of the terminal and the second frequency information, and the current location information of the terminal to the server, so that the server updates second correspondence information including first correspondence information arranged according to different location information.

[0018] Optionally, based on the second aspect, the apparatus further includes: a sending unit, configured to send a correspondence between the current frequency information of the cell reselection apparatus and the second frequency information, and the current location information of the cell reselection apparatus to the server, so that the server updates second correspondence information, where the second correspondence information includes first correspondence information arranged according to different location information.

[0019] In the foregoing optional technical solution, the server updates the second correspondence information,

so that another terminal may obtain, from the server, frequency information obtained by the terminal. Further, the another terminal may quickly perform cell reselection by using the frequency information obtained by the terminal, thereby reducing a network search time.

[0020] Optionally, based on the first aspect, the method further includes: sending, by the terminal, the first correspondence information to a base station, so that the base station sends configuration information to a second terminal according to the first correspondence information.

[0021] Correspondingly and optionally, based on the first aspect, the method further includes: receiving, by the terminal, the configuration information sent by the base station; if the configuration information includes the camp-on frequency information in the first correspondence information, deleting, by the terminal, the first correspondence information; and correspondingly, the method further includes: when the terminal starts cell reselection, selecting, by the terminal, a piece of frequency information in the configuration information, and reselecting a third cell corresponding to the frequency information for the terminal.

[0022] Optionally, based on the second aspect, the sending unit is further configured to: send the first correspondence information to a base station, so that the base station sends configuration information to a second cell reselection apparatus according to the first correspondence information.

[0023] Correspondingly and optionally, based on the second aspect, the apparatus further includes: a receiving unit, configured to receive the configuration information sent by the base station, where if the configuration information includes the camp-on frequency information in the first correspondence information, the cell reselection apparatus deletes the first correspondence information; and correspondingly, the reselection unit is further configured to: when the cell reselection apparatus starts cell reselection, select a piece of frequency information in the configuration information, and reselect a third cell corresponding to the frequency information for the cell reselection apparatus.

[0024] In the foregoing optional technical solution, the terminal receives the configuration information sent by the base station, where the configuration information includes non-configured frequency information. Therefore, frequency information in the configuration information may be supplemented. Further, when performing cell reselection, the terminal may reselect the third cell according to the configuration information, so as to reduce a time of the terminal in a network search, and reduce power consumption of the terminal.

[0025] Optionally, based on the first aspect, before the querying first correspondence information according to current frequency information, the method further includes: sending, by the terminal, a frequency information obtaining request to the server, where the frequency information obtaining request includes current location in-

formation of the terminal; and receiving, by the terminal, the first correspondence information that is sent by the server and that is corresponding to the current location information.

[0026] Optionally, based on the second aspect, the sending unit is further configured to send a frequency information obtaining request to the server, where the frequency information obtaining request includes current location information of the cell reselection apparatus; and the receiving unit is further configured to receive the first correspondence information that is sent by the server and that is corresponding to the current location information.

[0027] In the foregoing optional technical solution, the terminal obtains, from the server, the first correspondence information corresponding to the current location information of the terminal, so that the terminal may quickly perform cell reselection according to historical frequency information stored in the server. Therefore, a time of the terminal in a network search is reduced.

[0028] According to a third aspect, a server is provided, where the server includes: a receiving unit, configured to receive a frequency information obtaining request sent by a terminal, where the frequency information obtaining request includes current location information of the terminal; and a sending unit, configured to send first correspondence information corresponding to the current location information of the terminal, where the first correspondence information is stored in the server, and the first correspondence information includes a correspondence between search frequency information of the terminal and camp-on frequency information in a specified area, and the specified area is an area including the current location of the terminal; wherein the search frequency information comprises current frequency information of the terminal, the first correspondence information includes first camp-on frequency information corresponding to the current frequency information of the terminal, and the first camp-on frequency information meets a reselection condition of the terminal; wherein the current frequency information, the search frequency information, and the camp-on frequency information include at least attribute information: a frequency.

[0029] According to a fourth aspect, a terminal is provided, where the terminal includes a memory and a processor; and the memory stores code and data, and the processor executes the code in the memory, so that the terminal performs the cell reselection method according to the first aspect.

[0030] According to the cell reselection method and apparatus, and the frequency information management method and apparatus provided in the embodiments of the present invention, when the terminal starts cell reselection, the first correspondence information corresponding to the current location information of the terminal is queried according to the current frequency information, where the first correspondence information includes the correspondence between the search frequency informa-

tion and the camp-on frequency information, so that the terminal determines, according to the first correspondence information, to reselect the second cell for the terminal. The first correspondence information includes camp-on frequency information that is obtained when the terminal or another terminal is at the current location or is near the current location. Therefore, this may greatly improve a cell reselection success rate of the terminal, reduce a time of the terminal in a network search, and further reduce power consumption of the terminal.

BRIEF DESCRIPTION OF DRAWINGS

[0031] To describe the technical solutions in the embodiments of the present invention more clearly, the following briefly describes the accompanying drawings required for describing the embodiments or the prior art. Apparently, the accompanying drawings in the following description show merely some embodiments of the present invention, and a person of ordinary skill in the art may still derive other drawings from these accompanying drawings without creative efforts.

FIG. 1 is a diagram of a system architecture of a communications system according to an embodiment of the present invention;

FIG. 2 is a structural diagram of hardware of a server according to an embodiment of the present invention;

FIG. 3 is a structural diagram of hardware of a terminal according to an embodiment of the present invention;

FIG. 4 is a structural diagram of hardware of a base station according to an embodiment of the present invention;

FIG. 5 is a schematic flowchart of a cell reselection method according to an embodiment of the present invention;

FIG. 6A and FIG. 6B are a schematic flowchart of another cell reselection method according to an embodiment of the present invention;

FIG. 7 is a schematic structural diagram of a cell reselection apparatus according to an embodiment of the present invention;

FIG. 8 is a schematic structural diagram of another cell reselection apparatus according to an embodiment of the present invention;

FIG. 9 is a schematic structural diagram of a frequency information management apparatus according to an embodiment of the present invention;

FIG. 10 is a schematic structural diagram of another frequency information management apparatus according to an embodiment of the present invention;

FIG. 11 is a schematic structural diagram of a frequency information management apparatus according to an embodiment of the present invention; and

FIG. 12 is a schematic structural diagram of a base station according to an embodiment of the present

invention.

DESCRIPTION OF EMBODIMENTS

[0032] The following clearly and completely describes the technical solutions in the embodiments of the present invention with reference to the accompanying drawings in the embodiments of the present invention. Apparently, the described embodiments are merely some but not all of the embodiments of the present invention. All other embodiments obtained by a person of ordinary skill in the art based on the embodiments of the present invention without creative efforts shall fall within the protection scope of the present invention.

[0033] FIG. 1 is a diagram of a network architecture of a communications system according to an embodiment of the present invention. Referring to FIG. 1, the communications system includes a server 101, at least one terminal 102, and a base station 103. The server 101, the at least one terminal 102, and the base station 103 are network devices in the communications system, and each has functions of data processing and data storage. In addition, data transmission may be performed between the server 101, the at least one terminal 102, and the base station 103.

[0034] The server 101 is a network device that provides a service for the at least one terminal 102. For example, the server 101 may be a computer having a server function. Referring to FIG. 2, the server 101 includes a memory 1011, a processor 1012, a system bus 1013, a power component 1014, an input/output interface 1015, a communications component 1016, and the like. The memory 1011 may be configured to store data, a software program, and a module, and mainly includes a program storage area and a data storage area. The program storage area may be used to store an operating system, an application program required for at least one function, and the like. The data storage area may be used to store data created by using the server 101, and the like. The processor 1012 performs various functions of the server 101 and processes data by running or executing the software program and/or the module stored in the memory 1011 and by invoking the data stored in the memory 1011. The system bus 1013 includes an address bus, a data bus, and a control bus, and is configured to transmit data and an instruction. The power component 1014 is configured to supply power to each component of the server 101. The input/output interface 1015 is configured to provide an interface between the processor 1012 and a peripheral interface module. The communications component 1016 is configured to perform communication between the server 101 and another device in a wired or wireless manner. In the communications system, the server 101 undertakes key tasks, such as storage, forwarding, and release of data, and is an indispensable part in a network that is based on a client/server (C/S) mode or a browser/server (B/S) mode.

[0035] As an object that is served in the communica-

tions system, the at least one terminal 102 may include one or more terminals. The terminal may be a mobile phone, a tablet computer, a notebook, a portable device, or the like. Referring to FIG. 3, the terminal may include components such as a memory 1021, a processor 1022, an RF (radio frequency) circuit 1023, an input unit 1024, a display unit 1025, and a power supply 1025. The RF circuit 1023 may be configured to send and receive signals in information sending and receiving processes or in a call process. Generally, the RF circuit 1023 includes but is not limited to an antenna, at least one amplifier, a transceiver, a coupler, a low noise amplifier (low noise amplifier, LNA), and a duplexer. In addition, the RF circuit 1023 may further communicate with a network and another device by means of radio communication. The radio communication may be based on any communications standard or protocol, including but not limited to GSM, GPRS, CDMA, WCDMA, LTE (Long Term Evolution), an email, and an SMS (short message service). Although not shown in the diagram, the terminal 102 may further include a sensor module, an audio module, a Wi-Fi (Wireless Fidelity) module, a Bluetooth module, and the like. Details are not described herein.

[0036] The base station 103 is a base station in a radio access network (Radio Access Network, RAN). The base station 103 may be a base station controller (Base Station Controller, BSC), a radio network controller (Radio Network Controller, RNC), an evolved NodeB (evolved NodeB, eNB), or the like. Referring to FIG. 4, the base station 103 includes a baseband subsystem 1031, an intermediate radio frequency subsystem 1032, an antenna feeder subsystem 1033, and some support structures 1034 (for example, an entire subsystem). The baseband subsystem 1031 is configured to implement operation and maintenance of the entire base station, implement transmission interfaces of signaling processing, radio resource management, and Packet Core Network (Evolved Packet Core, EPC), and implement an operation and maintenance main control function at a physical layer, at a MAC (Media Access Control) layer, and in L3 signaling. The intermediate radio frequency subsystem 1032 implements conversion between a baseband signal, an intermediate frequency signal, and a radio frequency signal, and implements demodulation of a received radio signal, and modulation and power amplification of a sent signal. The antenna feeder subsystem 1033 includes an antenna and a feeder that are connected to a radio frequency module of the base station, and an antenna and a feeder that are of a GRS receiving card, configured to implement receiving and transmission of a radio air interface signal. The entire subsystem 1034 is a support part of the baseband subsystem 1031 and the intermediate frequency subsystem 1032, and provides a structure and functions of power supply and environment monitoring.

[0037] A person skilled in the art may understand that structures of a server, a terminal, and a base station shown in FIG. 2 to FIG. 4 do not constitute a limitation

on the structures of the server, the terminal, and the base station. In actual application, alternatively, the server, the terminal, or the base station may include components more or fewer than those shown in the diagram, or combine some components, or have a different component arrangement.

[0038] A basic principle of the technical solution provided in the present invention is as follows: When the terminal performs network reselection measurement, if the terminal finds no appropriate frequency in frequency information included in a delivered system message, the terminal first measures pre-stored frequency information. The pre-stored frequency information is frequency information that is previously obtained when the terminal performs all bandwidth search, and/or frequency information that is previously obtained by another terminal from the server in a specified area including a current location of the terminal, so that the terminal quickly finds appropriate frequency information from the pre-stored frequency information, and reselects a network corresponding to the frequency information, so as to reduce a search time of the terminal in network reselection, and reduce power consumption of the terminal.

[0039] FIG. 5 is a schematic flowchart of a cell reselection method according to an embodiment of the present invention. Referring to FIG. 5, the method includes the following steps.

[0040] Step 201: When a terminal starts cell reselection, query first correspondence information according to current frequency information of the terminal, where the first correspondence information is corresponding to current location information of the terminal, and includes a correspondence between search frequency information and camp-on frequency information.

[0041] That the first correspondence information is corresponding to current location information of the terminal, and includes a correspondence between search frequency information and camp-on frequency information means that the first correspondence information includes a correspondence between the search frequency information and the camp-on frequency information in a specified area. The specified area is an area including a current location of the terminal. Each correspondence in correspondences that are between search frequency information and camp-on frequency information and that are included in the first correspondence information is corresponding to a piece of location information. A location indicated by the piece of location information is in the specified area, and the piece of location information may be included in the first correspondence information.

[0042] In addition, that a terminal starts cell reselection means that the terminal starts system measurement and performs a cell reselection test when a network configuration of a network cell in which the terminal is currently located meets a reselection condition. The system measurement herein includes network measurement performed when a working frequency of the terminal in a same communications system changes, and network

measurement performed when working frequencies of the terminal in different communications systems change.

[0043] It should be noted that the reselection condition is a threshold set by the terminal according to a network parameter in a system message delivered by a base station. The system message may be configuration information that is sent by the base station to the terminal. The configuration information is configuration information received before the terminal performs network reselection. For example, the terminal sets, according to a network parameter, that is, signal strength, a network reselection condition to be that the signal strength is not lower than -100 dB; that is, the threshold is -100 dB. When signal strength of a network in which the terminal is currently located is lower than -100 dB, the terminal meets the network reselection condition.

[0044] Specifically, when the terminal starts the network reselection, if the terminal finds, according to a frequency priority in the configuration information, no frequency information that meets the reselection condition, the terminal queries the first correspondence information according to the current frequency information; that is, the terminal queries whether same information exists in attribute information included in the search frequency information in the first correspondence information and attribute information included in the current frequency information.

[0045] Optionally, the current frequency information, the search frequency information, and the camp-on frequency information include at least attribute information: a frequency. Further, in addition to including the attribute information: a frequency, the current frequency information, the search frequency information, and the camp-on frequency information may further respectively include at least one of the following attribute information: a network type, a location area code, or a cell identifier.

[0046] It should be noted that, that the same attribute information exists in the current frequency information and the search frequency information means that if one or more pieces of same information exist in a plurality of pieces of attribute information included in the current frequency information and the search frequency information, it represents that same attribute information exists in the current frequency information and the search frequency information.

[0047] Optionally, the first correspondence information may be stored in the terminal, or may be stored in a server, or a part of information in the first correspondence information is stored in the terminal, and the other part of information is stored in the server.

[0048] Step 202: The terminal determines, according to the first correspondence information, to reselect a second cell for the terminal.

[0049] When the terminal determines, according to the first correspondence information, to reselect the second cell for the terminal, the following two cases exist according to whether first camp-on frequency information cor-

responding to the current frequency information exists in the first correspondence information. Referring to FIG. 6A and FIG. 6B, details are as follows:

Case 1: The first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, and the method further includes steps 203a to 204a.

[0050] Step 203a: If first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, the terminal determines whether the first camp-on frequency information meets a reselection condition, where the search frequency information includes the current frequency information.

[0051] That first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information means that camp-on frequency information corresponding to the search frequency information in the first correspondence information is determined as the first camp-on frequency information when same information exists in attribute information of the current frequency information and attribute information of the search frequency information.

[0052] It should be noted that if same information exists in the attribute information of the current frequency information and attribute information of a plurality of pieces of search frequency information, a plurality of pieces of camp-on frequency information corresponding to the plurality of pieces of search frequency information are determined as first camp-on frequency information corresponding to the current frequency information; that is, the first camp-on frequency information includes a plurality of pieces of camp-on frequency information. The first camp-on frequency information is sequentially measured in descending order according to a quantity of pieces of same attribute information included in the search frequency information and the current frequency information.

[0053] For example, if search frequency information that includes the same attribute information as the current frequency information includes f1, f2, and f3, and quantities of pieces of the same attribute information are respectively 2, 1, and 3, the first camp-on frequency information includes camp-on frequency information d1, d2, and d3 that are respectively corresponding to f1, f2, and f3. When performing priority measurement according to the first camp-on frequency information, the terminal performs network measurement according to a sequence of d3, d1, and d2.

[0054] Specifically, when the first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, the terminal determines whether a network parameter corresponding to the first camp-on frequency information meets the reselection condition; for example, the terminal determines whether signal strength corresponding to the first camp-on frequency information meets a threshold corresponding to the signal strength.

[0055] Step 204a: If the first camp-on frequency information meets the reselection condition, reselect a second cell corresponding to the first camp-on frequency information for the terminal.

[0056] When the network parameter corresponding to the first camp-on frequency information meets the reselection condition, the terminal may directly reselect a network corresponding to the first camp-on frequency information. That is, the terminal reselects a network type and a network cell that are indicated by the first camp-on frequency information, that is, the second cell, thereby shortening a network measurement time of the terminal, and reducing power consumption of the terminal.

[0057] Further, before step 201, the method further includes step 205a to step 207a.

[0058] Step 205a: A terminal sends a frequency information obtaining request to a server, where the frequency information obtaining request includes current location information of the terminal.

[0059] When a cell in which the terminal is currently located meets the reselection condition, the terminal may send a frequency information obtaining request including the current location information to the server, so that the server sends, according to the current location information of the terminal, a correspondence between search frequency information and camp-on frequency information in a specified area to the terminal. Certainly, the terminal may not send the frequency information obtaining request to the server. The server actively detects the current location information of the terminal, and sends the correspondence that is corresponding to the current location information of the terminal and that is between the search frequency information and the camp-on frequency information in the specified area to the terminal.

[0060] Preferably, when the location information of the terminal significantly changes, for example, the terminal moves from one cell to another cell, or moves from a location area to another location area, the terminal may send a frequency information obtaining request to the server, so that the server selects, from stored correspondences of frequency information, a correspondence of frequency information that is in a specified area and that includes a current location of the terminal. The selected correspondence of the frequency information is frequency information that is obtained when another terminal arrives at the current location of the terminal or a location near the current location of the terminal.

[0061] Step 206a: When the server receives the frequency information obtaining request sent by the terminal, the server sends, according to the current location information of the terminal, the first correspondence information corresponding to the current location information to the terminal.

[0062] The first correspondence information corresponding to the current location information includes the correspondence between the search frequency information and the camp-on frequency information in the specified area. The specified area is an area that includes the

current location of the terminal. Second correspondence information includes first correspondence information arranged according to different location information.

[0063] That is, the second correspondence information includes correspondences that are reported by a plurality of terminals, that include different location information, and that are between search frequency information and camp-on frequency information. The second correspondence information is arranged according to a sequence of different location information. The first correspondence information is a part of the second correspondence information, and is corresponding to the current location information of the terminal.

[0064] It should be noted that an area size of the specified area may be set in advance, provided that the specified area includes the current location of the terminal. Optionally, the specified area may be a circular area formed by using the current location of the terminal as a center, and using a specified length as a radius; or a rectangular area formed by using the current location of the terminal as a center, and using a specified length as a length of a side. Certainly, in actual application, the specified area may be of any shape or any size. This is not limited in this embodiment of the present invention.

[0065] Further, when the terminal receives the first correspondence information sent by the server, the terminal may perform cell reselection according to the method described in step 201 to step 202. The first correspondence information includes the correspondence between the search frequency information and the camp-on frequency information in the specified area, and the correspondence is obtained when another terminal is at the current location of the terminal or is at the location near the current location. Therefore, when the terminal performs cell reselection according to the first correspondence information, a cell reselection success rate of the terminal may be greatly improved, and a time of the terminal in a network search is reduced.

[0066] Case 2: No first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, and the method further includes steps 203b to 204b.

[0067] Step 203b: If no first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, the terminal performs a network search to obtain second frequency information.

[0068] Specifically, when no first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, and when the terminal performs the network search, the terminal may select, from all bandwidths of a network according to a location at which the terminal is currently located and operator information corresponding to the terminal, a network frequency band that can be supported by the terminal. Then, the second frequency information is obtained, in a manner of network frequency search in the prior art, from the network frequency band support-

ed by the terminal.

[0069] For example, if the location at which the terminal is currently located is China, and an operator corresponding to the terminal is China Mobile Communications Corporation, a network frequency band used by China Mobile Communications Corporation in China is selected from all the bandwidths of the network, and the second frequency information that meets the reselection condition is obtained from the network frequency band.

[0070] Step 204b: If the second frequency information meets the reselection condition, reselect a second cell corresponding to the second frequency information for the terminal.

[0071] When a network parameter corresponding to the second frequency information meets the reselection condition, the terminal may directly reselect the second cell corresponding to the second frequency information. That is, the terminal reselects a network type and a network cell that are indicated by the second frequency information. Further, the terminal may further locally store a correspondence between the current frequency information and the second frequency information, so that when the terminal arrives at the location again, the second frequency information may be quickly used for cell reselection, and a repeated network search is avoided.

[0072] Further, the method further includes step 205b and step 206b.

[0073] Step 205b: The terminal sends a correspondence between the current frequency information and the second frequency information, and the current location information of the terminal to the server.

[0074] After the terminal finds the second frequency information and reselects the second cell corresponding to the second frequency information, the terminal may send the correspondence between the current frequency information and the second frequency information, and the current location information of the terminal to the server, so that the server updates the locally stored second correspondence information. The second correspondence information includes the first correspondence information arranged according to different location information. That is, the second correspondence information includes the correspondence that is between the search frequency information and the camp-on frequency information and that is arranged according to the different location information.

[0075] It should be noted that when the correspondence between the current frequency information of the terminal and the second frequency information, and the current location information of the terminal are sent to the server, each time after a correspondence between current frequency information and the second frequency information is determined, the correspondence may be sent by the terminal to the server, or may be sent to the server according to a preset period; or the correspondence is sent to the server when the terminal searches in different locations and determines that a quantity of correspondences between current frequency information

and the second frequency information reaches a preset quantity. This is not limited in this embodiment of the present invention.

[0076] Step 206b: The server receives the correspondence between the current frequency information of the terminal and the second frequency information, and the current location information of the terminal, and updates second correspondence information.

[0077] When the server receives the correspondence that is between the current frequency information and the second frequency information and that is sent by the terminal, and the current location information of the terminal, the server may add the correspondence between the current frequency information and the second frequency information to the second correspondence information according to the location information of the terminal and based on a sequence of different location information, so as to complete updating of the second correspondence information. Further, when another terminal arrives at the current location of the terminal, the another terminal may obtain, from the server, a correspondence that is between search frequency information and camp-on frequency information and that is corresponding to the current location, so that the another terminal may quickly perform cell reselection by using frequency information obtained by the terminal, thereby reducing a network search time.

[0078] It should be noted that if the correspondence between the current frequency information and the second frequency information is the same as a correspondence that is between search frequency information and camp-on frequency information and that exists in the second correspondence information, only one record of the same correspondences between the search frequency information and the camp-on frequency information is reserved in the second correspondence information.

[0079] Further, the method further includes step 207 to step 208.

[0080] Step 207: The server sends the second correspondence information to a base station.

[0081] The correspondence that is between the search frequency information and the camp-on frequency information and that is included in the second correspondence information is frequency information reselected by means of network search when a plurality of terminals perform cell reselection according to configuration information, and cannot obtain appropriate frequency information. Therefore, the server may send the second correspondence information to the base station, so that the base station re-determines and sends configuration information according to the second correspondence information, so as to deliver the frequency information obtained by the plurality of terminals to each terminal.

[0082] In addition, when the server sends the second correspondence information to the base station, the server may send the second correspondence information to the base station according to a specified period, or may send the second correspondence information to the base

station when a quantity of correspondences that are included in the second correspondence information reaches a specified quantity. Certainly, in actual application, the server may alternatively send the second correspondence information to the base station in another manner. This is not limited in this embodiment of the present invention.

[0083] Further, after the server sends the second correspondence information to the base station, the server may further delete second correspondence information stored in the server, so as to save storage space.

[0084] Step 208: When receiving the second correspondence information, the base station sends configuration information to a second terminal according to the second correspondence information.

[0085] Optionally, the configuration information includes non-configured frequency information, and the non-configured frequency information is frequency information that the base station does not configure for the terminal in last configuration information.

[0086] When the base station receives the second correspondence information, the base station selects, according to the camp-on frequency information in the second correspondence information, frequency information that is not configured for the terminal in last configuration information, then determines non-configured frequency information, and sends the non-configured frequency information to the second terminal by sending configuration information again, so as to supplement frequency information in configuration information. The second terminal may be any terminal communicating with the base station, and alternatively, the second terminal may be the terminal.

[0087] Further, when the terminal receives the configuration information, if the non-configured frequency information includes the camp-on frequency information in the first correspondence information, the terminal deletes the first correspondence information.

[0088] Specifically, when the terminal receives the configuration information, the terminal may compare the non-configured frequency information included in the configuration information with the camp-on frequency information in the first correspondence information stored in the terminal. If the non-configured frequency information includes all camp-on frequency information in the first correspondence information, the terminal may delete the first correspondence information stored in the terminal; or if the non-configured frequency information includes a part of camp-on frequency information in the first correspondence information, the terminal may delete a whole piece of correspondence corresponding to the part of camp-on frequency information in the first correspondence information, so as to reduce storage in the terminal and save memory.

[0089] Further, when the terminal performs cell reselection again, the terminal may directly select one piece of frequency information from the frequency information included in the configuration information. When the se-

lected frequency information meets the reselection condition, the terminal reselects a third cell corresponding to the selected frequency information.

[0090] Optionally, the terminal may alternatively send the first correspondence information to the base station, so that the base station sends the configuration information to the second terminal according to the first correspondence information. A process in which the terminal sends the first correspondence information to the base station, and the base station sends the configuration information to the second terminal according to the first correspondence information is similar to a process in which the foregoing server sends the second correspondence information to the base station, and the base station sends the configuration information to the second terminal according to the second correspondence information. Details are not described in this embodiment of the present invention again.

[0091] According to the cell reselection method provided in this embodiment of the present invention, when the terminal starts cell reselection, the first correspondence information is queried according to the current frequency information. If the first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, and the first camp-on frequency information meets the reselection condition, the terminal reselects the network corresponding to the first camp-on frequency information. The first correspondence information includes camp-on frequency information that is obtained when the terminal or another terminal is at the current location or is near the current location. Therefore, this may greatly improve a cell reselection success rate of the terminal, reduce a time of the terminal in a network search, and further reduce power consumption of the terminal.

[0092] FIG. 7 is a schematic structural diagram of a cell reselection apparatus according to an embodiment of the present invention. Referring to FIG. 7, the apparatus includes a query unit 301 and a reselection unit 302.

[0093] The query unit 301 is configured to: when the cell reselection apparatus starts cell reselection, query first correspondence information according to current frequency information of the cell reselection apparatus, where the first correspondence information is corresponding to current location information of the cell reselection apparatus, and includes a correspondence between search frequency information and camp-on frequency information.

[0094] The reselection unit 302 is configured to determine, according to the first correspondence information, to reselect a second cell for the cell reselection apparatus.

[0095] Optionally, the first correspondence information is stored in the cell reselection apparatus, and/or in a server.

[0096] In another embodiment of the present invention, the reselection unit 302 is specifically configured to: if first camp-on frequency information corresponding to the

current frequency information exists in the first correspondence information, determine whether the first camp-on frequency information meets a reselection condition, where the search frequency information includes the current frequency information; and if the first camp-on frequency information meets the reselection condition, reselect a second cell corresponding to the first camp-on frequency information for the cell reselection apparatus.

[0097] In another embodiment of the present invention, the reselection unit 302 is specifically configured to: if no first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, perform a network search to obtain second frequency information; and if the second frequency information meets a reselection condition, reselect a second cell corresponding to the second frequency information for the cell reselection apparatus.

[0098] Optionally, referring to FIG. 8, the apparatus further includes a sending unit 303 and a receiving unit 304.

[0099] The sending unit 303 is configured to send a correspondence between the current frequency information of the cell reselection apparatus and the second frequency information, and the current location information of the cell reselection apparatus to the server, so that the server updates second correspondence information, where the second correspondence information includes first correspondence information arranged according to different location information.

[0100] Optionally, the sending unit 303 is further configured to send the first correspondence information to a base station, so that the base station sends configuration information to a second cell reselection apparatus according to the first correspondence information.

[0101] In another embodiment of the present invention, the receiving unit 304 is configured to receive the configuration information sent by the base station, where if the configuration information includes the camp-on frequency information in the first correspondence information, the cell reselection apparatus deletes the first correspondence information.

[0102] Correspondingly, the reselection unit 302 is further configured to: when the cell reselection apparatus starts cell reselection, select a piece of frequency information in the configuration information, and reselect a third cell corresponding to the frequency information for the cell reselection apparatus.

[0103] In another embodiment of the present invention, the sending unit 303 is further configured to send a frequency information obtaining request to the server, where the frequency information obtaining request includes current location information of the cell reselection apparatus; and the receiving unit 304 is further configured to receive the first correspondence information that is sent by the server and that is corresponding to the current location information.

[0104] According to the cell reselection apparatus provided in this embodiment of the present invention, when

the cell reselection apparatus starts cell reselection, the first correspondence information corresponding to the current location information of the terminal is queried according to the current frequency information, where the first correspondence information includes the correspondence between the search frequency information and the camp-on frequency information, so as to determine, according to the first correspondence information, to reselect the second cell for the cell reselection apparatus. The first correspondence information includes camp-on frequency information that is obtained when the cell reselection apparatus or another cell reselection apparatus is at the current location or is near the current location. Therefore, this may greatly reduce a time of the cell reselection apparatus in a network search, and further reduce power consumption of the cell reselection apparatus.

[0105] FIG. 9 is a schematic structural diagram of a frequency information management apparatus according to an embodiment of the present invention. The apparatus includes a receiving unit 401 and a sending unit 402.

[0106] The receiving unit 401 is configured to receive a frequency information obtaining request sent by a terminal, where the frequency information obtaining request includes current location information of the terminal.

[0107] The sending unit 402 is configured to send first correspondence information corresponding to the current location information of the terminal, where the first correspondence information is stored in the frequency information management apparatus, and the first correspondence information includes a correspondence between search frequency information and camp-on frequency information.

[0108] Optionally, referring to FIG. 10, the apparatus further includes an updating unit 403.

[0109] The receiving unit 401 is further configured to receive a correspondence between current frequency information of the terminal and second frequency information.

[0110] The updating unit 403 is configured to update second correspondence information according to the correspondence between the current frequency information of the terminal and the second frequency information, where the second correspondence information includes first correspondence information arranged according to different location information.

[0111] In another embodiment of the present invention, the sending unit 402 is further configured to send the second correspondence information to a base station, so that the base station sends configuration information to the terminal according to the second correspondence information.

[0112] According to the frequency information management apparatus provided in this embodiment of the present invention, the frequency information obtaining request sent by the terminal is received, and the first correspondence information corresponding to the current

location information of the terminal is sent to the terminal, where the first correspondence information includes frequency information that is previously obtained by another terminal, so that the terminal may quickly perform cell reselection according to the frequency information that is previously obtained by the another terminal. Therefore, a time of the terminal in a network search is reduced.

[0113] FIG. 11 is a schematic structural diagram of a frequency information management apparatus according to an embodiment of the present invention. The apparatus includes a receiving unit 501 and a sending unit 502.

[0114] The receiving unit 501 is configured to receive first correspondence information sent by a terminal or second correspondence information sent by a server, where the second correspondence information includes first correspondence information arranged according to different location information, and the first correspondence information is corresponding to current location information of the terminal, and includes a correspondence between search frequency information and camp-on frequency information.

[0115] The sending unit 502 is configured to send configuration information to the terminal according to the first correspondence information or the second correspondence information.

[0116] According to the frequency information management apparatus provided in this embodiment of the present invention, the first correspondence information sent by the terminal is received, or the second correspondence information sent by the server is received, and the configuration information is sent to the terminal according to the first correspondence information or the second correspondence information, so that frequency information in the configuration information may be supplemented. Further, when the terminal performs cell reselection, cell reselection may be performed according to the configuration information, so as to reduce a time of the terminal in a network search, and reduce power consumption of the terminal.

[0117] An embodiment of the present invention provides a terminal. Referring to FIG. 3, the terminal includes a memory 1021, a processor 1022, an RF (radio frequency, radio frequency) circuit 1023, an input unit 1024, a display unit 1025, a power supply 1025, and the like. The memory 1021 stores code and data, and the processor 1022 executes the code in the memory 1021, so that a server performs steps of the terminal in the cell reselection method according to the embodiment corresponding to the foregoing FIG. 5 or FIG. 6A and FIG. 6B.

[0118] According to the terminal provided in this embodiment of the present invention, when the terminal starts cell reselection, the first correspondence information is queried according to the current frequency information. If the first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, and the first camp-on frequency information meets the reselection condi-

tion, the terminal reselects the network corresponding to the first camp-on frequency information. The first correspondence information includes camp-on frequency information that is obtained when the terminal or another terminal is at the current location or is near the current location. Therefore, this may greatly improve a cell reselection success rate of the terminal, reduce a time of the terminal in a network search, and further reduce power consumption of the terminal.

[0119] An embodiment of the present invention provides a server. Referring to FIG. 2, the server includes a memory 1011, a processor 1012, a system bus 1013, a power component 1014, an input/output interface 1015, a communications component 1016, and the like. The memory 1011 stores code and data, and the processor 1012 executes the code in the memory 1011, so that the server performs steps of the server in the cell reselection method according to the embodiment corresponding to the foregoing FIG. 5 or FIG. 6A and FIG. 6B.

[0120] According to the server provided in this embodiment of the present invention, the frequency information obtaining request sent by the terminal is received, and the first correspondence information corresponding to the current location information of the terminal is sent to the terminal, where the first correspondence information includes frequency information that is previously obtained by another terminal, so that the terminal may quickly perform cell reselection according to the frequency information that is previously obtained by the another terminal. Therefore, a time of the terminal in a network search is reduced.

[0121] FIG. 12 is a schematic structural diagram of a base station according to an embodiment of the present invention. Referring to FIG. 12, the base station includes a memory 601, a processor 602, a system bus 603, and a communications interface 604. The memory 601 stores code and data, the processor 602 is connected to the memory 601 by using the system bus 603, and the processor 602 executes the code in the memory 601, so that the base station performs steps of the base station in the cell reselection method according to the embodiment corresponding to the foregoing FIG. 5 or FIG. 6A and FIG. 6B.

[0122] According to the base station provided in this embodiment of the present invention, the first correspondence information sent by the terminal is received, or the second correspondence information sent by the server is received, and the configuration information is sent to the terminal according to the first correspondence information or the second correspondence information, so that frequency information in the configuration information may be supplemented. Further, when the terminal performs cell reselection, cell reselection may be performed according to the configuration information, so as to reduce a time of the terminal in a network search, and reduce power consumption of the terminal.

[0123] Finally, it should be noted that the foregoing embodiments are merely intended for describing the tech-

nical solutions of the present invention but not for limiting the present invention. Although the present invention is described in detail with reference to the foregoing embodiments, a person of ordinary skill in the art should understand that they may still make modifications to the technical solutions described in the foregoing embodiments or make equivalent replacements to some technical features thereof, without departing from the scope of the technical solutions of the embodiments of the present invention.

Claims

1. A cell reselection method performed by a terminal, wherein the method comprises:

before performing cell reselection, receiving, by the terminal, configuration information from a base station;

determining, by the terminal, whether frequency information that meets a reselection condition exists in the configuration information;

when the terminal starts the cell reselection, if the terminal determines that no frequency information in the configuration information meets the reselection condition, querying (201), by the terminal, first correspondence information according to current frequency information of the terminal, wherein the first correspondence information is stored in the terminal, and/or in a server, the first correspondence information includes a correspondence between search frequency information of the terminal and camp-on frequency information in a specified area, and the specified area is an area including a current location of the terminal, wherein the current frequency information, the search frequency information, and the camp-on frequency information include at least attribute information: a frequency; and

determining (202), by the terminal according to the first correspondence information, to reselect a second cell for the terminal; wherein the determining (202, 203a, 203b, 204a, 204b), according to the first correspondence information, to reselect a second cell for the terminal comprises:

if first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, determining (203a), by the terminal, whether the first camp-on frequency information meets the reselection condition, wherein the search frequency information comprises the current frequency information; and

if the first camp-on frequency information meets the reselection condition, reselecting (204a) a second cell corresponding to the first camp-on frequency information for the terminal.

2. The method according to claim 1, wherein the determining (202, 203a, 203b, 204a, 204b), according to the first correspondence information, to reselect a second cell for the terminal comprises:

if no first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, performing (203b), by the terminal, a network search to obtain second frequency information; and

if the second frequency information meets a reselection condition, reselecting (204b) a second cell corresponding to the second frequency information for the terminal.

3. The method according to claim 2, wherein after the reselecting a second cell corresponding to the second frequency information for the terminal, the method further comprises:

sending (205b) a correspondence between the current frequency information of the terminal and the second frequency information, and the current location information of the terminal to the server, so that the server updates second correspondence information; wherein the second correspondence information comprises first correspondence information arranged according to different location information.

4. The method according to claim 1, wherein the method further comprises:

sending, by the terminal, the first correspondence information to a base station, so that the base station sends configuration information to a second terminal according to the first correspondence information.

5. The method according to any one of claims 1 to 4, wherein before the querying (201) first correspondence information according to current frequency information, the method further comprises:

sending (205a), by the terminal, a frequency information obtaining request to the server, wherein the frequency information obtaining request comprises current location information of the terminal; and receiving (206a), by the terminal, the first correspondence information that is sent by the server and that is corresponding to the current location

information.

6. The method according to any one of claims 1 to 5, wherein the reselection condition is a threshold set by the terminal according to a network parameter in the configuration information.

7. A cell reselection apparatus, wherein the apparatus is a terminal and comprises:

a query unit (301), configured to: before performing cell reselection by the cell reselection apparatus, receive configuration information from a base station, determine whether frequency information that meets a reselection condition exists in the configuration information, and when the cell reselection apparatus starts the cell reselection, if it is determined that no frequency information in the configuration information meets the reselection condition, query first correspondence information according to current frequency information of the cell reselection apparatus, wherein the first correspondence information is stored in the cell reselection apparatus, and/or in a server, the first correspondence information includes a correspondence between search frequency information of the cell reselection apparatus and camp-on frequency information in a specified area, and the specified area is an area including a current location of the cell reselection apparatus, wherein the current frequency information, the search frequency information, and the camp-on frequency information include at least attribute information: a frequency; and
a reselection unit (302), configured to determine, according to the first correspondence information, to reselect a second cell for the cell reselection apparatus;
wherein the reselection unit (302) is specifically configured to:

if first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, determine whether the first camp-on frequency information meets a reselection condition, wherein the search frequency information comprises the current frequency information; and
if the first camp-on frequency information meets the reselection condition, reselect a second cell corresponding to the first camp-on frequency information for the cell reselection apparatus.

8. The apparatus according to claim 7, wherein the reselection unit (302) is specifically configured to:

if no first camp-on frequency information corresponding to the current frequency information exists in the first correspondence information, perform a network search to obtain second frequency information; and
if the second frequency information meets a reselection condition, reselect a second cell corresponding to the second frequency information for the cell reselection apparatus.

9. The apparatus according to claim 8, wherein the apparatus further comprises:

a sending unit (303), configured to send a correspondence between the current frequency information of the cell reselection apparatus and the second frequency information, and the current location information of the cell reselection apparatus to the server, so that the server updates second correspondence information; wherein
the second correspondence information comprises first correspondence information arranged according to different location information.

10. The apparatus according to claim 7, wherein the sending unit (303) is further configured to:
send the first correspondence information to a base station, so that the base station sends configuration information to a second cell reselection apparatus according to the first correspondence information.

11. The apparatus according to any one of claims 7 to 10, wherein the reselection condition is a threshold set by the cell reselection apparatus according to a network parameter in the configuration information.

12. A server, wherein the server comprises:

a receiving unit (401), configured to receive a frequency information obtaining request sent by a terminal, wherein the frequency information obtaining request comprises current location information of the terminal; and
a sending unit (402), configured to send first correspondence information corresponding to the current location information of the terminal, wherein the first correspondence information is stored in the server, and the first correspondence information includes a correspondence between search frequency information of the terminal and camp-on frequency information in a specified area, and the specified area is an area including the current location of the terminal; wherein the search frequency information comprises current frequency information of the terminal, the first correspondence information in-

cludes first camp-on frequency information corresponding to the current frequency information of the terminal, and the first camp-on frequency information meets a reselection condition of the terminal;

wherein the current frequency information, the search frequency information, and the camp-on frequency information include at least attribute information: a frequency.

13. The server according to claim 12, wherein the server further comprises an updating unit (403), wherein the receiving unit (401) is further configured to receive a correspondence between the current frequency information of the terminal and second frequency information; and the updating unit (403) is configured to update second correspondence information according to the correspondence between the current frequency information of the terminal and the second frequency information, wherein the second correspondence information comprises first correspondence information arranged according to different location information.

Patentansprüche

1. Zellwiederauswahlverfahren, durchgeführt von einem Endgerät, wobei das Verfahren Folgendes umfasst:

vor der Durchführung einer Zellwiederauswahl, Empfangen, durch das Endgerät, von Konfigurationsinformationen von einer Basisstation; Bestimmen, durch das Endgerät, ob Frequenzinformationen, die eine Wiederauswahlbedingung erfüllen, in den Konfigurationsinformationen vorhanden sind;

falls das Endgerät zu Beginn der Zellwiederauswahl ermittelt, dass keine Frequenzinformationen in den Konfigurationsinformationen die Wiederauswahlbedingung erfüllen, Abfragen (201), durch das Endgerät, der ersten Korrespondenzinformationen gemäß den aktuellen Frequenzinformationen des Endgerätes,

wobei die ersten Korrespondenzinformationen in dem Endgerät und/oder in einem Server gespeichert sind, die ersten Korrespondenzinformationen eine Korrespondenz zwischen den Suchfrequenzinformationen des Endgerätes und Wartefrequenzinformationen in einem angegebenen Bereich einschließen, und der angegebene Bereich ein Bereich ist, der einen aktuellen Standort des Endgerätes einschließt, wobei die aktuellen Frequenzinformationen, die Suchfrequenzinformationen und die Wartefrequenzinformationen zumindest Attributinforma-

tionen enthalten:

eine Frequenz; und Bestimmen (202), durch das Endgerät gemäß den ersten Korrespondenzinformationen, der Wiederauswahl einer zweiten Zelle für das Endgerät; wobei das Bestimmen (202, 203a, 203b, 204a, 204b), gemäß den ersten Korrespondenzinformationen, der Wiederauswahl einer zweiten Zelle für das Endgerät Folgendes umfasst:

falls erste Wartefrequenzinformationen, die den aktuellen Frequenzinformationen entsprechen, in den ersten Korrespondenzinformationen vorhanden sind,

Bestimmen (203a), durch das Endgerät, ob die ersten Wartefrequenzinformationen die Wiederauswahlbedingung erfüllen,

wobei die Suchfrequenzinformationen die aktuellen Frequenzinformationen umfassen; und

falls die ersten Wartefrequenzinformationen die Wiederauswahlbedingung erfüllen, Wiederauswählen (204a) einer zweiten Zelle, die den ersten Wartefrequenzinformationen für das Endgerät entspricht.

2. Verfahren gemäß Anspruch 1, wobei das Bestimmen (202, 203a, 203b, 204a, 204b), gemäß den ersten Korrespondenzinformationen, der Wiederauswahl einer zweiten Zelle für das Endgerät Folgendes umfasst:

falls keine ersten Wartefrequenzinformationen, die den aktuellen Frequenzinformationen entsprechen, in den ersten Korrespondenzinformationen vorhanden sind, Durchführen (203b), durch das Endgerät, einer Netzwerksuche, um zweite Frequenzinformationen zu erhalten; und falls die zweiten Frequenzinformationen eine Wiederauswahlbedingung erfüllen, Wiederauswählen (204b) einer zweiten Zelle, die den zweiten Frequenzinformationen für das Endgerät entspricht.

3. Verfahren gemäß Anspruch 2, wobei nach der Wiederauswahl einer zweiten Zelle, die den zweiten Frequenzinformationen für das Endgerät entspricht, das Verfahren ferner Folgendes umfasst:

Senden (205b) einer Korrespondenz zwischen den aktuellen Frequenzinformationen des Endgerätes und den zweiten Frequenzinformatio-

- nen, und der aktuellen Standortinformationen des Endgerätes zu dem Server, so dass der Server die zweiten Korrespondenzinformationen aktualisiert;
wobei die zweiten Korrespondenzinformationen erste Korrespondenzinformationen umfassen, die gemäß anderen Standortinformationen angeordnet sind. 5
4. Verfahren gemäß Anspruch 1, wobei das Verfahren ferner Folgendes umfasst:
Senden, durch das Endgerät, der ersten Korrespondenzinformationen zu einer Basisstation, so dass die Basisstation Konfigurationsinformationen zu einem zweiten Endgerät gemäß den ersten Korrespondenzinformationen sendet. 10 15
5. Verfahren gemäß einem der Ansprüche 1 bis 4, wobei vor dem Abfragen (201) von ersten Korrespondenzinformationen gemäß aktuellen Frequenzinformationen das Verfahren ferner Folgendes umfasst: 20
- Senden (205a), durch das Endgerät, einer Frequenzinformationen-Erlangungsanforderung an den Server, 25
wobei die Frequenzinformationen-Erlangungsanforderung aktuelle Standortinformationen des Endgerätes umfassen; und
Empfangen (206a), durch das Endgerät, der ersten Korrespondenzinformationen, die von dem Server gesendet werden, und die den aktuellen Standortinformationen entsprechen. 30
6. Verfahren gemäß einem der Ansprüche 1 bis 5, wobei die Wiederauswahlbedingung eine Schwelle ist, die durch das Endgerät gemäß einem Netzwerkparameter in den Konfigurationsinformationen festgelegt wird. 35
7. Zellwiederauswahlvorrichtung, wobei die Vorrichtung ein Endgerät ist und Folgendes umfasst: 40
- eine Abfrageeinheit (301), die für Folgendes ausgelegt ist: vor dem Durchführen einer Zellwiederauswahl durch die Zellwiederauswahlvorrichtung, Empfangen von Konfigurationsinformationen von einer Basisstation, Bestimmen, ob Frequenzinformationen, die eine Wiederauswahlbedingung erfüllen, in den Konfigurationsinformationen vorhanden sind, und falls die Zellwiederauswahlvorrichtung zu Beginn der Zellwiederauswahl ermittelt, dass keine Frequenzinformationen in den Konfigurationsinformationen die Wiederauswahlbedingung erfüllen, Abfragen der ersten Korrespondenzinformationen gemäß den aktuellen Frequenzinformationen der Zellwiederauswahlvorrichtung, wobei die ersten Korrespondenzinformationen in der Zell- 45 50 55
- wiederauswahlvorrichtung und/oder in einem Server gespeichert sind, die ersten Korrespondenzinformationen eine Korrespondenz zwischen den Suchfrequenzinformationen der Zellwiederauswahlvorrichtung und Wartefrequenzinformationen in einem angegebenen Bereich einschließen, und der angegebene Bereich ein Bereich ist, der einen aktuellen Standort der Zellwiederauswahlvorrichtung einschließt, wobei die aktuellen Frequenzinformationen, die Suchfrequenzinformationen und die Wartefrequenzinformationen zumindest Attributinformationen enthalten:
- eine Frequenz; und
eine Wiederauswahleinheit (302), die dazu ausgelegt ist, gemäß den ersten Korrespondenzinformationen die Wiederauswahl einer zweiten Zelle für die Zellwiederauswahlvorrichtung zu bestimmen;
wobei die Wiederauswahleinheit (302) insbesondere für Folgendes ausgelegt ist:
- falls erste Wartefrequenzinformationen, die den aktuellen Frequenzinformationen entsprechen, in den ersten Korrespondenzinformationen vorhanden sind, Bestimmen, ob die ersten Wartefrequenzinformationen eine Wiederauswahlbedingung erfüllen, wobei die Suchfrequenzinformationen die aktuellen Frequenzinformationen umfassen; und
falls die ersten Wartefrequenzinformationen die Wiederauswahlbedingung erfüllen, Wiederauswählen einer zweiten Zelle, die den ersten Wartefrequenzinformationen für die Zellwiederauswahlvorrichtung entspricht.
8. Vorrichtung gemäß Anspruch 7, wobei die Wiederauswahleinheit (302) insbesondere für Folgendes ausgelegt ist:
- falls keine ersten Wartefrequenzinformationen, die den aktuellen Frequenzinformationen entsprechen, in den ersten Korrespondenzinformationen vorhanden sind, Durchführen einer Netzwerksuche, um zweite Frequenzinformationen zu erhalten; und
falls die zweiten Frequenzinformationen eine Wiederauswahlbedingung erfüllen, Wiederauswählen einer zweiten Zelle, die den zweiten Frequenzinformationen für die Zellwiederauswahlvorrichtung entspricht.
9. Vorrichtung gemäß Anspruch 8, wobei die Vorrichtung ferner Folgendes umfasst:

eine Sendeeinheit (303), die dazu ausgelegt ist, eine Korrespondenz zwischen den aktuellen Frequenzinformationen der Zellwiederauswahlvorrichtung und den zweiten Frequenzinformationen, und die aktuellen Standortinformationen der Zellwiederauswahlvorrichtung zu dem Server zu senden, so dass der Server die zweiten Korrespondenzinformationen aktualisiert; wobei die zweiten Korrespondenzinformationen erste Korrespondenzinformationen umfassen, die gemäß anderen Standortinformationen angeordnet sind.

10. Vorrichtung gemäß Anspruch 7, wobei die Sendeeinheit (303) ferner für Folgendes ausgelegt ist: Senden der ersten Korrespondenzinformationen zu einer Basisstation, so dass die Basisstation Konfigurationsinformationen zu einer Zellwiederauswahlvorrichtung gemäß den ersten Korrespondenzinformationen sendet.

11. Vorrichtung gemäß einem der Ansprüche 7 bis 10, wobei die Wiederauswahlbedingung eine Schwelle ist, die durch die Zellwiederauswahlvorrichtung gemäß einem Netzwerkparameter in den Konfigurationsinformationen festgelegt wird.

12. Server, wobei der Server Folgendes umfasst:

eine Empfangseinheit (401), die dazu ausgelegt ist, eine von einem Endgerät gesendete Frequenzinformationen-Erlangungsanforderung zu empfangen, wobei die Frequenzinformationen-Erlangungsanforderung aktuelle Standortinformationen des Endgerätes umfasst; und eine Sendeeinheit (402), die dazu ausgelegt ist, erste Korrespondenzinformationen zu senden, die den aktuellen Standortinformationen des Endgerätes entsprechen, wobei die ersten Korrespondenzinformationen in dem Server gespeichert sind, und die ersten Korrespondenzinformationen eine Korrespondenz zwischen den Suchfrequenzinformationen des Endgerätes und Wartefrequenzinformationen in einem angegebenen Bereich einschließen, und der angegebene Bereich ein Bereich ist, der einen aktuellen Standort des Endgerätes einschließt; wobei die Suchfrequenzinformationen aktuelle Frequenzinformationen des Endgerätes umfassen, die ersten Korrespondenzinformationen erste Wartefrequenzinformationen enthalten, die den aktuellen Frequenzinformationen des Endgerätes entsprechen, und die ersten Wartefrequenzinformationen eine Wiederauswahlbedingung des Endgerätes erfüllen; wobei die aktuellen Frequenzinformationen, die Suchfrequenzinformationen und die Wartefrequenzinformationen zumindest Attributinforma-

tionen enthalten: eine Frequenz.

13. Server gemäß Anspruch 12, wobei der Server ferner eine Aktualisierungseinheit (403) umfasst, wobei die Empfangseinheit (401) ferner dazu ausgelegt ist, eine Korrespondenz zwischen den aktuellen Frequenzinformationen des Endgerätes und zweiten Frequenzinformationen zu empfangen; und die Aktualisierungseinheit (403) dazu ausgelegt ist, zweite Korrespondenzinformationen gemäß der Korrespondenz zwischen den aktuellen Frequenzinformationen des Endgerätes und den zweiten Frequenzinformationen zu aktualisieren, wobei die zweiten Korrespondenzinformationen erste Korrespondenzinformationen umfassen, die gemäß anderen Standortinformationen angeordnet sind.

Revendications

1. Procédé de nouvelle sélection de cellules exécuté par un terminal, dans lequel le procédé comprend de :

avant l'exécution de la nouvelle sélection de cellules, recevoir, par le terminal, des informations de configuration provenant d'une station de base ;

déterminer, par le terminal, si des informations de fréquences qui satisfont une condition de nouvelle sélection existent dans les informations de configuration ;

lorsque le terminal commence la nouvelle sélection de cellules, si le terminal détermine qu'aucune information de fréquence dans les informations de configuration ne satisfait la condition de nouvelle sélection, effectuer une requête (201), par le terminal, des premières informations de correspondance en fonction des informations de fréquence actuelle du terminal, les premières informations de correspondance étant stockées dans le terminal, et/ou dans un serveur, les premières informations de correspondance comprenant une correspondance entre des informations de fréquence de recherche du terminal et des informations de fréquence de mise en attente dans une zone spécifiée, et la zone spécifiée est une zone comprenant un emplacement actuel du terminal, les informations de fréquence actuelle, les informations de fréquence de recherche et les informations de fréquence de mise en attente comprenant au moins des informations d'attribut : une fréquence ; et

déterminer (202), par le terminal en fonction des premières informations de correspondance, de sélectionner à nouveau une seconde cellule pour le terminal ;

dans lequel la détermination (202, 203a, 203b, 204a, 204b), en fonction des premières informations de correspondance, de sélectionner à nouveau une seconde cellule pour le terminal comprend :

si des premières informations de fréquence de mise en attente correspondant aux informations de fréquence actuelle existent dans les premières informations de correspondance, déterminer (203a), par le terminal, si les premières informations de fréquence de mise en attente satisfont la condition de nouvelle sélection, les informations de fréquence de recherche comprenant les informations de fréquence actuelle ; et

si les premières informations de fréquence de mise en attente satisfont la condition de nouvelle sélection, sélectionner à nouveau (204a) une seconde cellule correspondant aux premières informations de fréquence de mise en attente pour le terminal.

2. Procédé selon la revendication 1, dans lequel la détermination (202, 203a, 203b, 204a, 204b), en fonction des premières informations de correspondance, de sélectionner à nouveau une seconde cellule pour le terminal comprend :

si aucune première information de fréquence de mise en attente correspondant aux informations de fréquence actuelle n'existe dans les premières informations de correspondance, exécuter (203b), par le terminal, une recherche de réseau pour obtenir des secondes informations de fréquence ; et

si les secondes informations de fréquence satisfont une condition de nouvelle sélection, sélectionner à nouveau (204b) une seconde cellule correspondant à des secondes informations de fréquence pour le terminal.

3. Procédé selon la revendication 2, dans lequel après la nouvelle sélection d'une seconde cellule correspondant aux secondes informations de fréquence pour le terminal, le procédé comprend en outre :

l'envoi (205b) d'une correspondance entre les informations de fréquence actuelle du terminal et les secondes informations de fréquence, et les informations d'emplacement actuel du terminal au serveur, de sorte que le serveur met à jour des secondes informations de correspondance ; dans lequel les secondes informations de correspondance comprennent des premières informations de correspondance agencées en fonction de diffé-

rentes informations d'emplacement.

4. Procédé selon la revendication 1, dans lequel le procédé comprend en outre :

l'envoi, par le terminal, des premières informations de correspondance à une station de base, de sorte que la station de base envoie des informations de configuration à un second terminal en fonction des premières informations de correspondance.

5. Procédé selon l'une quelconque des revendications 1 à 4, dans lequel avant la requête (201) des premières informations de correspondance en fonction des informations de fréquence actuelle, le procédé comprend en outre :

l'envoi (205a), par le terminal, d'une requête d'obtention d'informations de fréquence au serveur, la requête d'obtention d'informations de fréquence comprenant des informations d'emplacement actuel du terminal ; et la réception (206a), par le terminal, de premières informations de correspondance qui sont envoyées par le serveur et qui correspondent aux informations d'emplacement actuel.

6. Procédé selon l'une quelconque des revendications 1 à 5, dans lequel la condition de nouvelle sélection est un seuil défini par le terminal en fonction d'un paramètre de réseau dans les informations de configuration.

7. Appareil de nouvelle sélection de cellules, dans lequel l'appareil est un terminal et comprend :

une unité de requête (301), conçue pour : avant l'exécution de la nouvelle sélection de cellules par l'appareil de nouvelle sélection de cellules, recevoir des informations de configuration provenant d'une station de base, déterminer si des informations de fréquences qui satisfont une condition de nouvelle sélection existent dans les informations de configuration, et lorsque l'appareil de nouvelle sélection de cellules commence la nouvelle sélection de cellules, si on détermine qu'aucune information de fréquence dans les informations de configuration ne satisfait la condition de nouvelle sélection, effectuer une requête des premières informations de correspondance en fonction des informations de fréquence actuelle de l'appareil de nouvelle sélection de cellules, les premières informations de correspondance étant stockées dans l'appareil de nouvelle sélection de cellules et/ou dans un serveur, les premières informations de correspondance comprenant une correspondance entre des informations de fréquence de recherche de l'appareil de nouvelle sélection de cellules et des

informations de fréquence de mise en attente dans une zone spécifiée, et la zone spécifiée est une zone comprenant un emplacement actuel de l'appareil de nouvelle sélection de cellules, les informations de fréquence actuelle, les informations de fréquence de recherche et les informations de fréquence de mise en attente comprenant au moins des informations d'attribut : une fréquence ; et une unité de nouvelle sélection (302), conçue pour déterminer, en fonction des premières informations de correspondance, de sélectionner à nouveau une seconde cellule pour l'appareil de nouvelle sélection de cellules ; dans lequel l'unité de nouvelle sélection (302) est spécifiquement conçue pour :

si des premières informations de fréquence de mise en attente correspondant aux informations de fréquence actuelle existent dans les premières informations de correspondance, déterminer si les premières informations de fréquence de mise en attente satisfont une condition de nouvelle sélection, les informations de fréquence de recherche comprenant les informations de fréquence actuelle ; et si les premières informations de fréquence de mise en attente satisfont la condition de nouvelle sélection, sélectionner à nouveau une seconde cellule correspondant aux premières informations de fréquence de mise en attente pour l'appareil de nouvelle sélection de cellules.

8. Appareil selon la revendication 7, dans lequel l'unité de nouvelle sélection (302) est conçue spécifiquement pour :

si aucune première information de fréquence de mise en attente correspondant aux informations de fréquence actuelle n'existe dans les premières informations de correspondance, exécuter une recherche de réseau pour obtenir des secondes informations de fréquence ; et si les secondes informations de fréquence satisfont une condition de nouvelle sélection, sélectionner à nouveau une seconde cellule correspondant aux secondes informations de fréquence pour l'appareil de nouvelle sélection de cellules.

9. Appareil selon la revendication 8, dans lequel l'appareil comprend en outre :

une unité d'envoi (303), conçue pour envoyer une correspondance entre les informations de fréquence actuelle de l'appareil de nouvelle sé-

lection de cellules et les secondes informations de fréquence, et les informations d'emplacement actuel de l'appareil de nouvelle sélection de cellules au serveur, de sorte que le serveur met à jour des secondes informations de correspondance ; dans lequel les secondes informations de correspondance comprennent des premières informations de correspondance agencées en fonction de différentes informations d'emplacement.

10. Appareil selon la revendication 7, dans lequel l'unité d'envoi (303) est conçue en outre pour : envoyer les premières informations de correspondance à une station de base, de sorte que la station de base envoie des informations de configuration à un second appareil de nouvelle sélection de cellules en fonction des premières informations de correspondance.

11. Appareil selon l'une quelconque des revendications 7 à 10, dans lequel la condition de nouvelle sélection est un seuil défini par l'appareil de nouvelle sélection de cellules en fonction d'un paramètre de réseau dans les informations de configuration.

12. Serveur, dans lequel le serveur comprend :

une unité de réception (401), conçue pour recevoir une requête d'obtention d'informations de fréquence envoyée par un terminal, la requête d'obtention d'informations de fréquence comprenant des informations d'emplacement actuel du terminal ; et une unité d'envoi (402), conçue pour envoyer des premières informations de correspondance correspondant aux informations d'emplacement actuel du terminal, les premières informations de correspondance étant stockées dans le serveur, et les premières informations de correspondance comprenant une correspondance entre des informations de fréquence de recherche du terminal et des informations de fréquence de mise en attente dans une zone spécifiée, et la zone spécifiée est une zone comprenant l'emplacement actuel du terminal ; dans lequel les informations de fréquence de recherche comprennent des informations de fréquence actuelle du terminal, les premières informations de correspondance comprennent des premières informations de fréquence de mise en attente correspondant aux informations de fréquence actuelle du terminal, et les premières informations de fréquence de mise en attente satisfont une condition de nouvelle sélection du terminal ; dans lequel les informations de fréquence actuelle, les informations de fréquence de recher-

che et les informations de fréquence de mise en attente comprennent au moins des informations d'attribut : une fréquence.

13. Serveur selon la revendication 12, dans lequel le serveur comprend en outre une unité de mise à jour (403), dans lequel :

l'unité de réception (401) est conçue en outre pour recevoir une correspondance entre les informations de fréquence actuelle du terminal et les secondes informations de fréquence ; et l'unité de mise à jour (403) est conçue pour mettre à jour des secondes informations de correspondance en fonction de la correspondance entre les informations de fréquence actuelle du terminal et les secondes informations de fréquence, les secondes informations de correspondance comprenant les premières informations de correspondance agencées en fonction des différentes informations d'emplacement.

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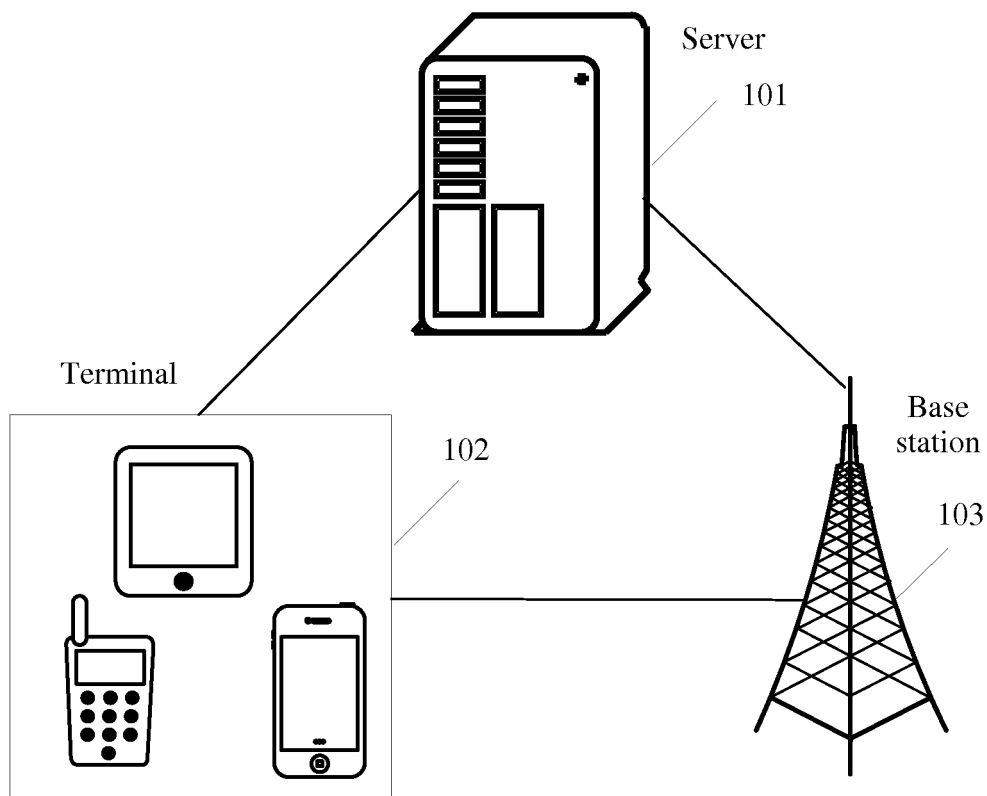


FIG. 1

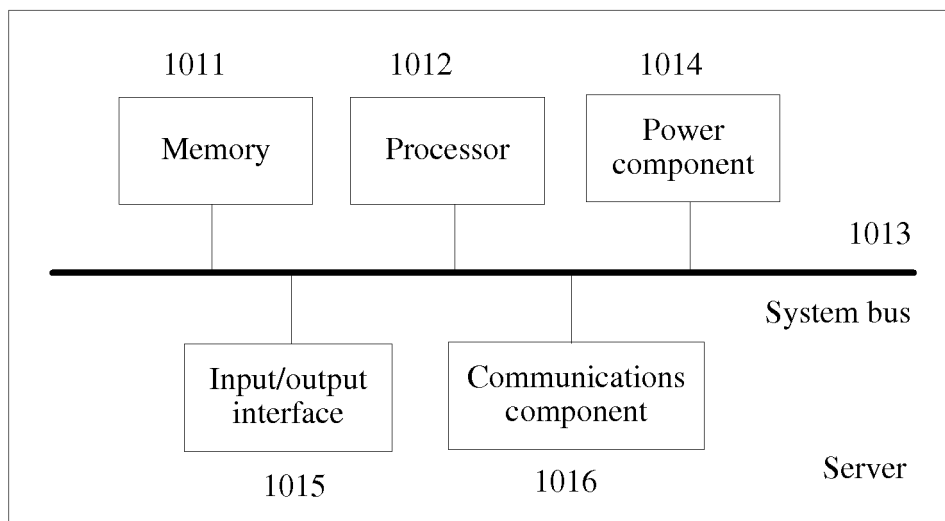


FIG. 2

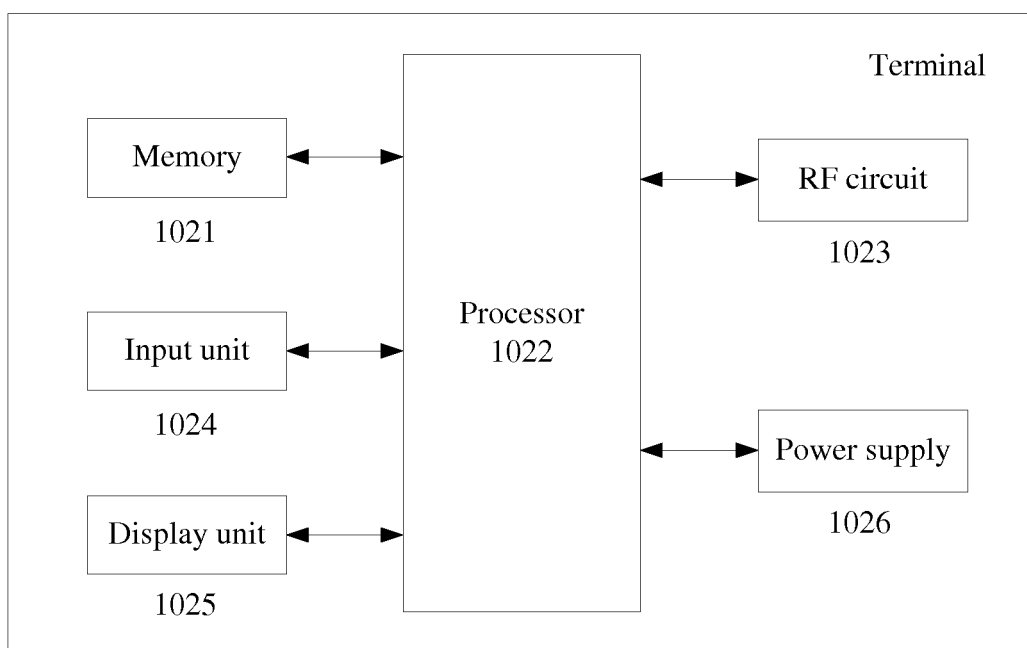


FIG. 3

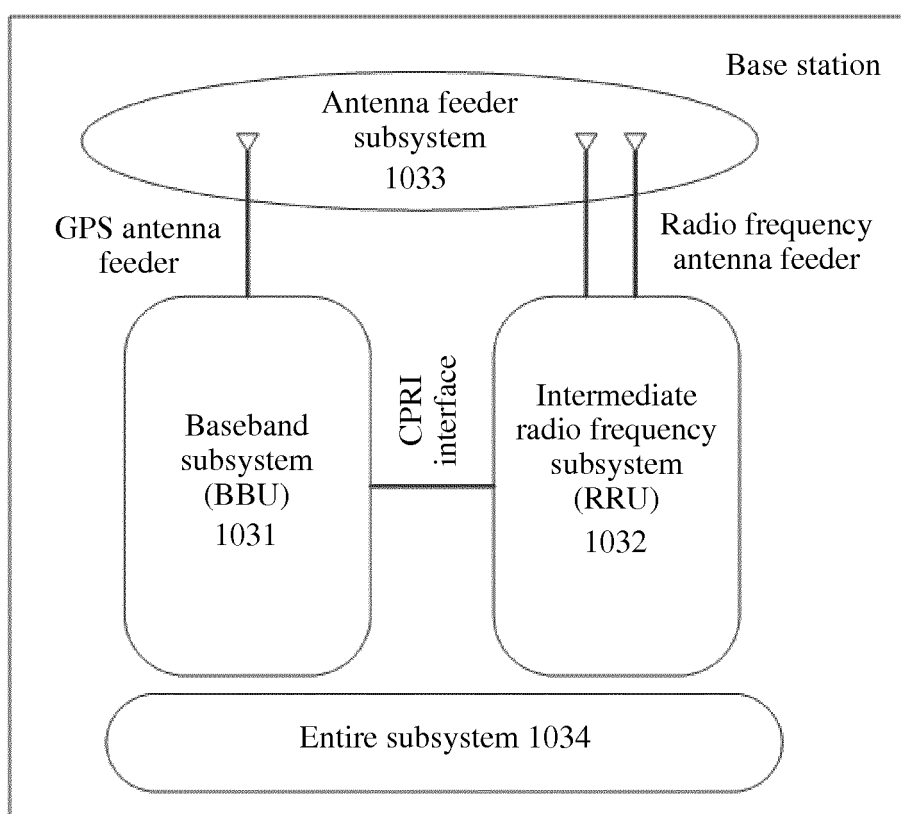


FIG. 4

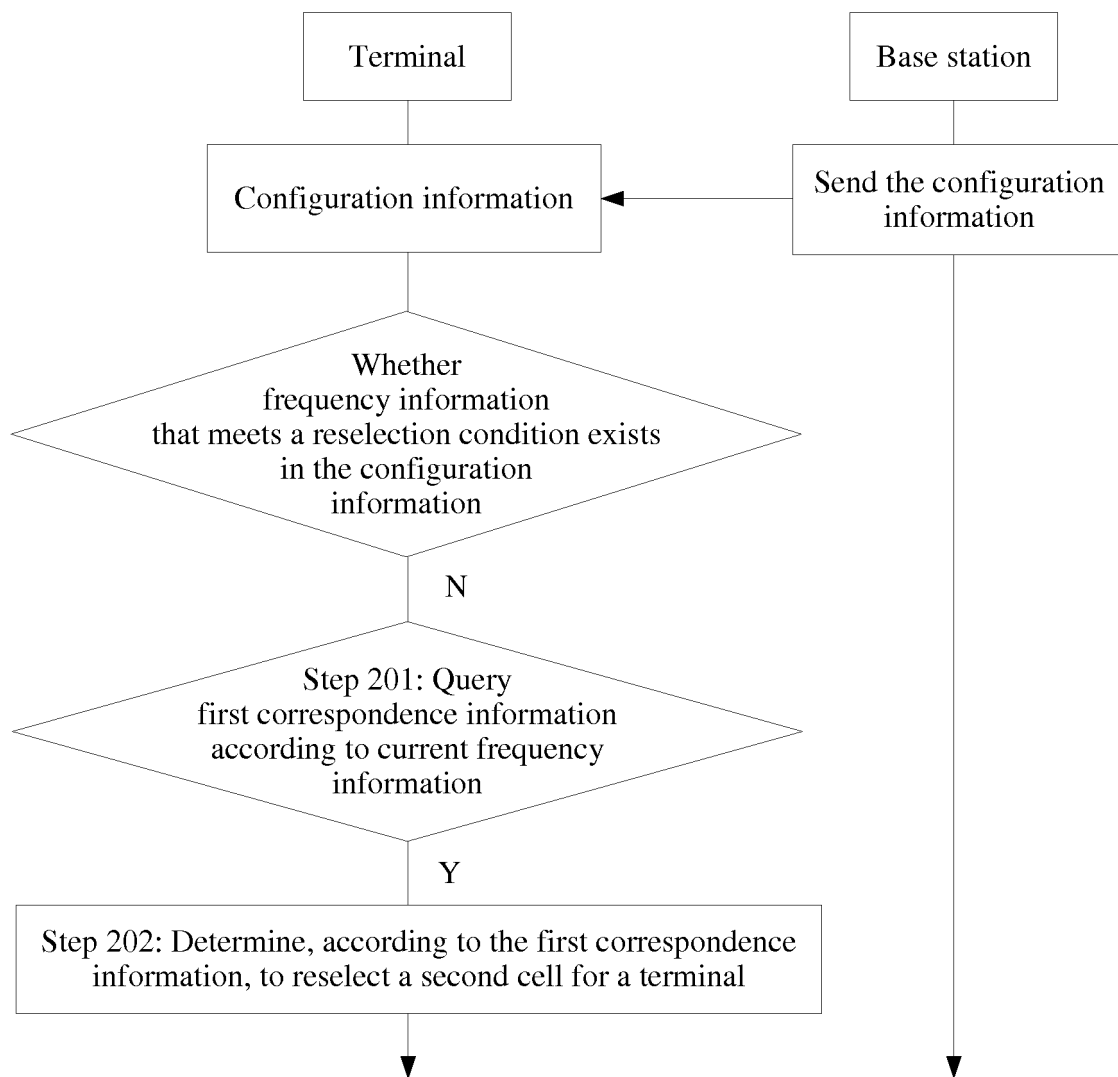


FIG. 5

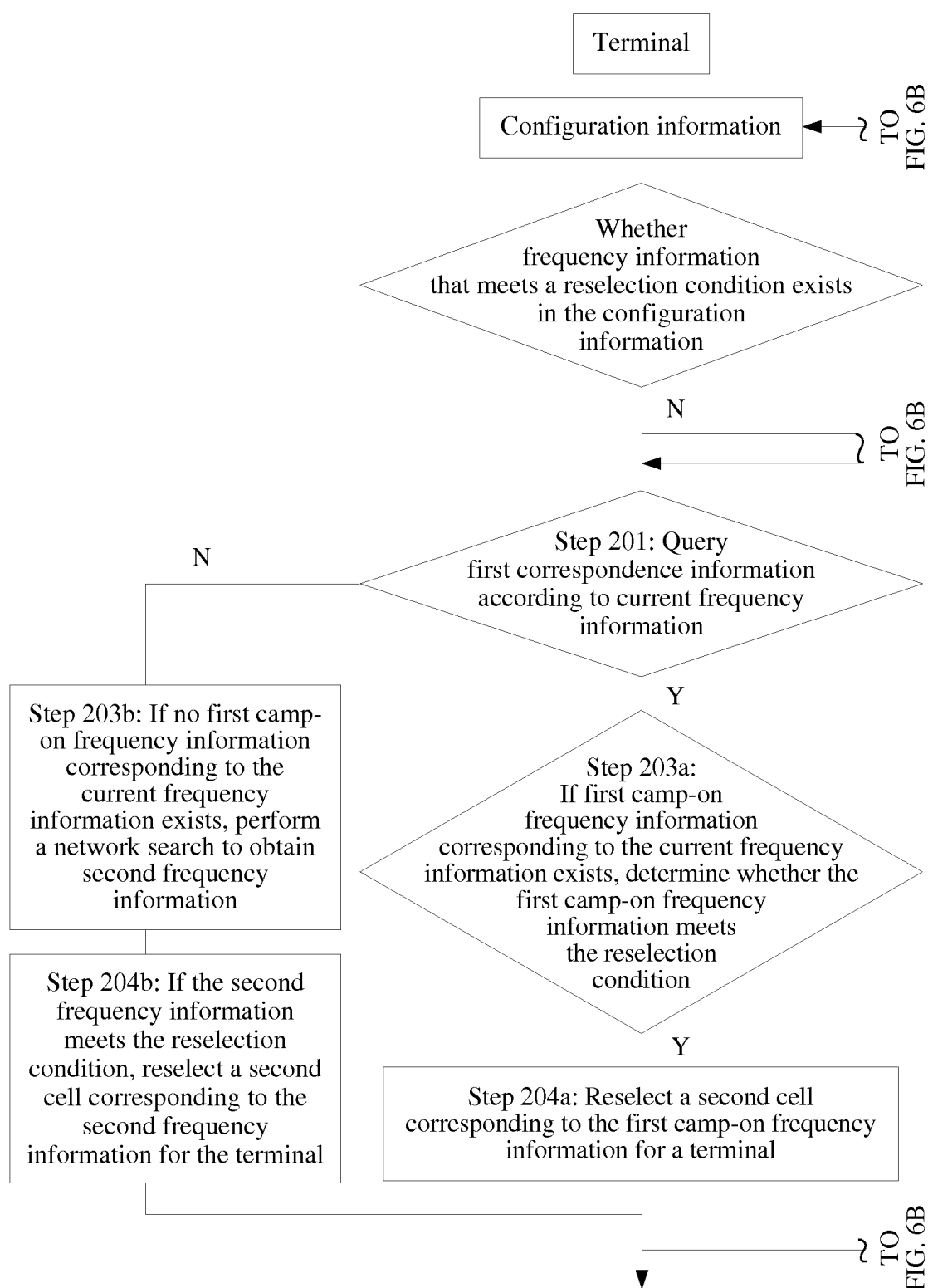


FIG. 6A

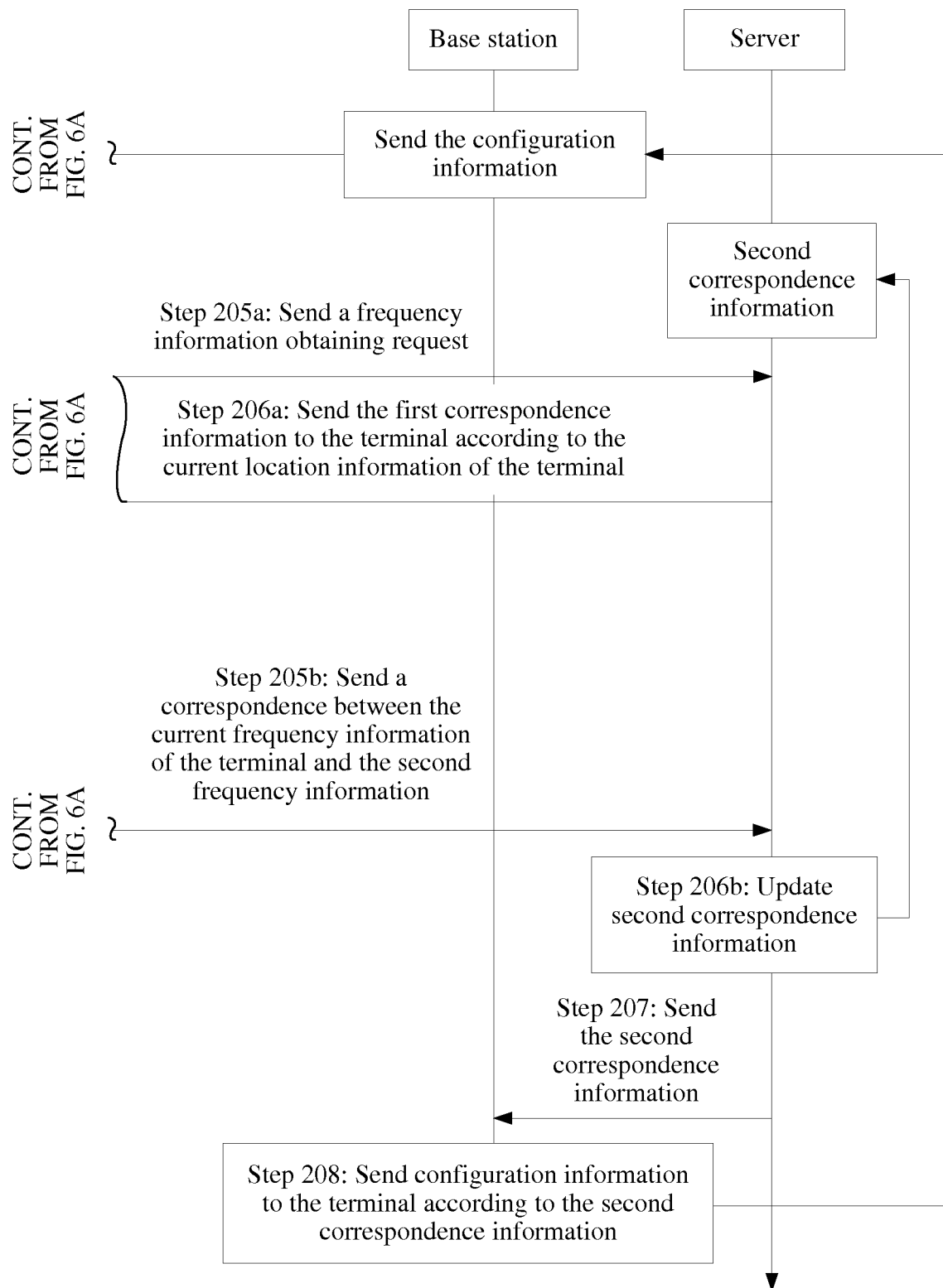


FIG. 6B

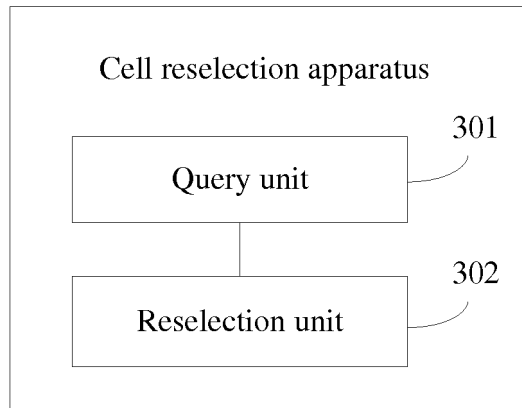


FIG. 7

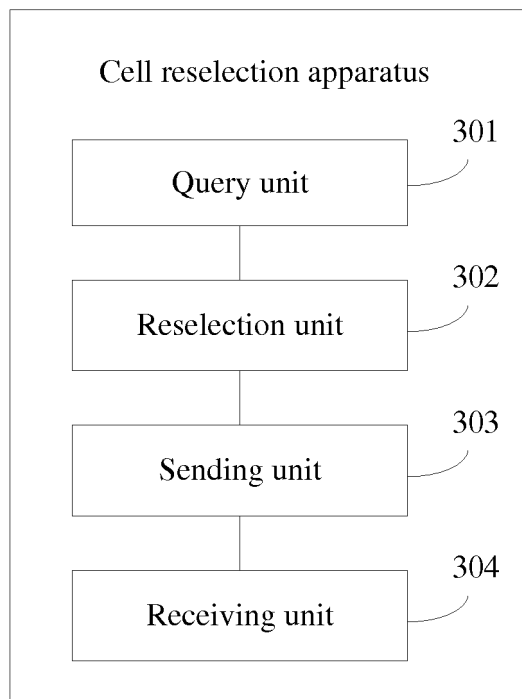


FIG. 8

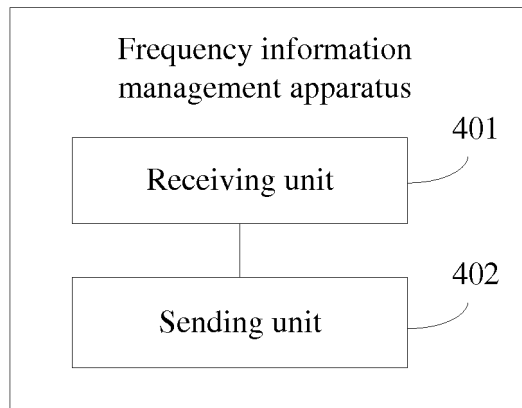


FIG. 9

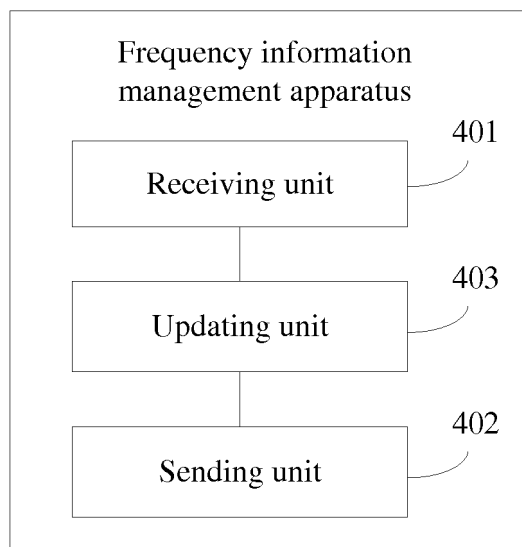


FIG. 10

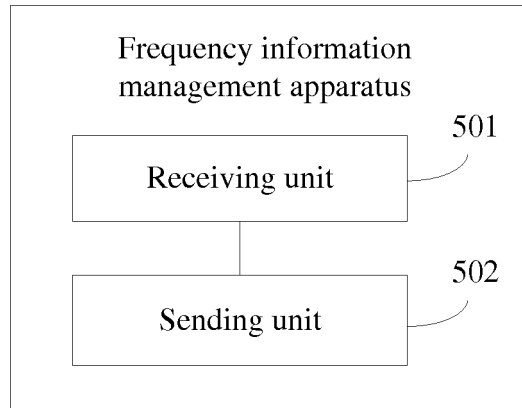


FIG. 11

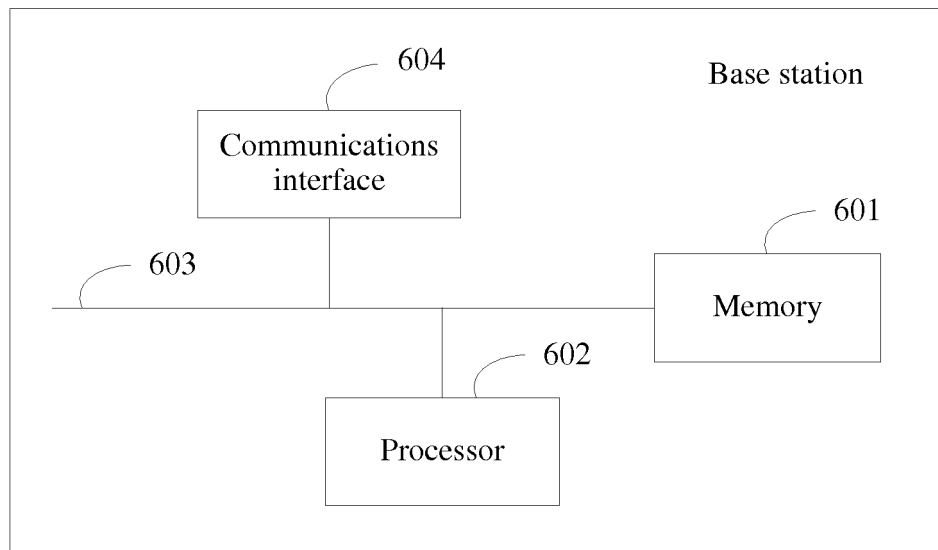


FIG. 12

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 2015271718 A1 [0005]
- US 2011098046 A1 [0006]

Non-patent literature cited in the description

- **NSN et al.** Way Forward for Hetnet Re-establishment Enhancements. 3GPP draft, R2-134097 [0007]
- **ORANGE et al.** ANDSF policies conflict resolution in the UE. 3GPP draft, S2-095169 [0008]